Dual

CS 1264

Owner's manual

Single-play/multiple-play
turntable with Vario-belt drive
and ULM (Ultra Low Mass) tonearm

Introduction

You now own one of the finest turntables made today, one which will make your records more enjoyable than ever before.
In addition to your turntable's superb performance, you will appreciate its ease and simplicity of operation and in time, its long-lasting reliability.
Before proceeding with the installation, please read through this manual carefully. This will help prevent any problems from incorrect installation or imprecise tonearm settings.
If you should have any questions about your Dual's operation or performance, please contact us. We would also appreciate your comments on the enclosed warranty card.
We appreciate your selection of Dual and hope you will have countless hours of musical enjoyment.

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WARNING: To prevent fire or shock hazard, do not expose this product to rain or moisture.

Dual

CS 1264

Fig. 1

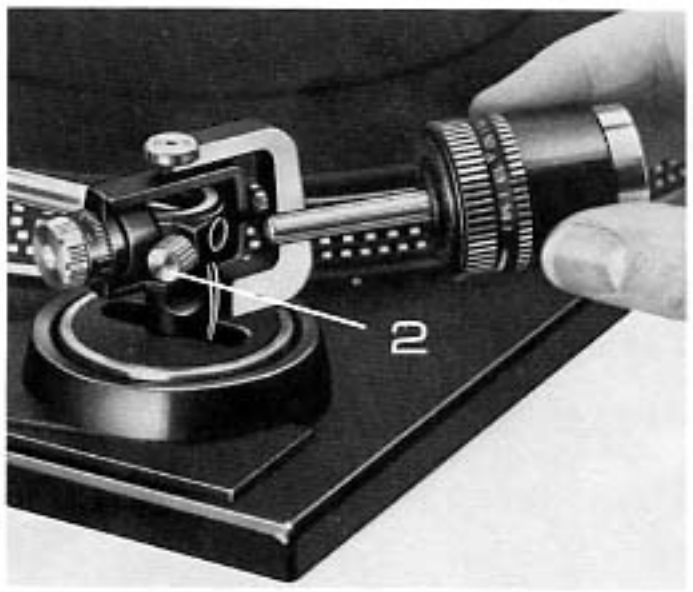

Fig. 2

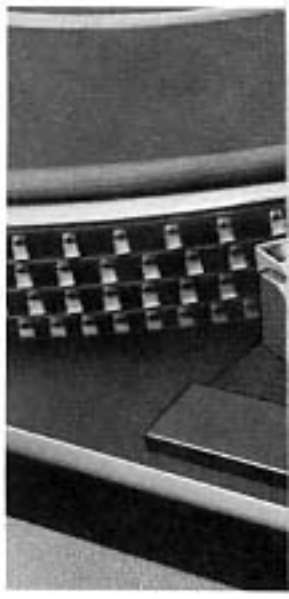

Fig. 3

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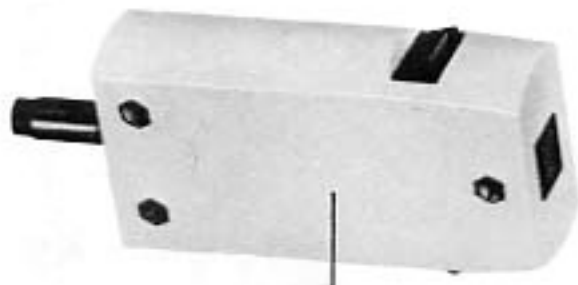

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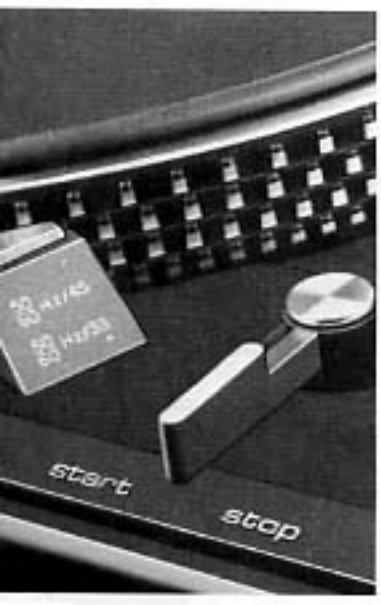


Fig. 4

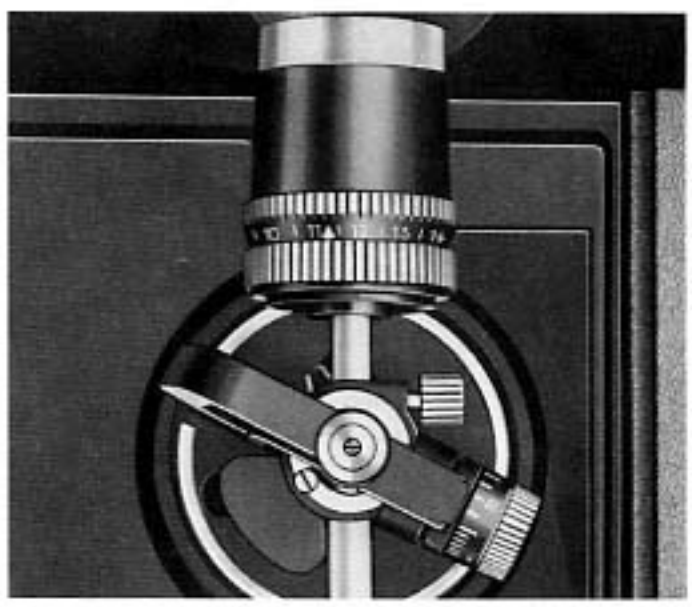


Fig. 5

Features of the Dual CS 1264

(1) Tonearm counterbalance with tunable anti-resonator
(2) Locking screw for tonearm counterbalance
(3) Tracking force setting
(4) Alignment screw for tonearm height
(5) Anti-skating setting
(6) Cue control
(7) Continuous repeat switch
(8) Alignment screw for tonearm set-down point
(9) Tonearm post with tonearm rest
(10) Automatic start-stop switch
(11) Illuminated stroboscope
(12) Tonearm lift/ULM stylus lock
(13) Cartridge attachment screw
(14) Single-play spindle
(15) Transport locking screw (one of three)
(16) Pitch control
(17) Speed selector
(18) Multiple-play spindle AS 12 for large-hole records (special accessory)
(19) Adapter for large-hole records
(20) Multiple-play spindle AW 3

Fig. 6

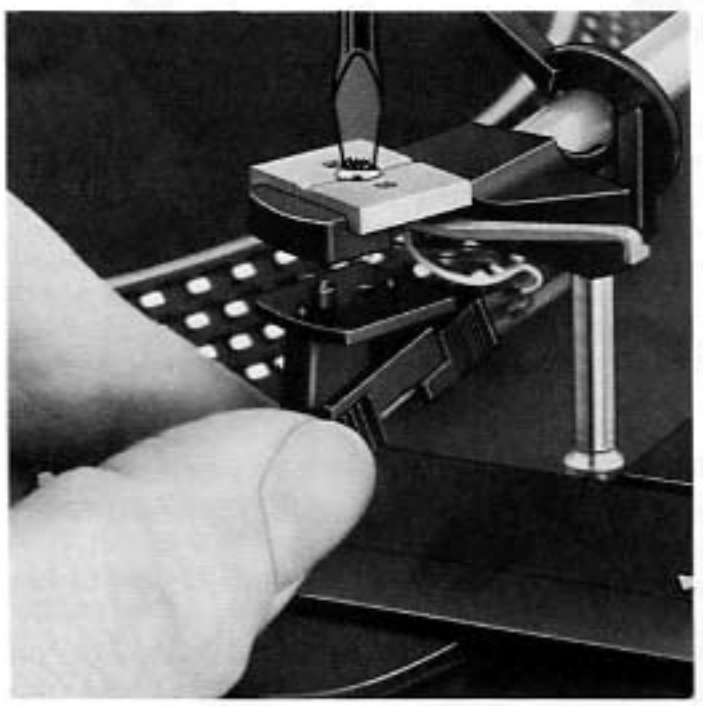


Fig. 7

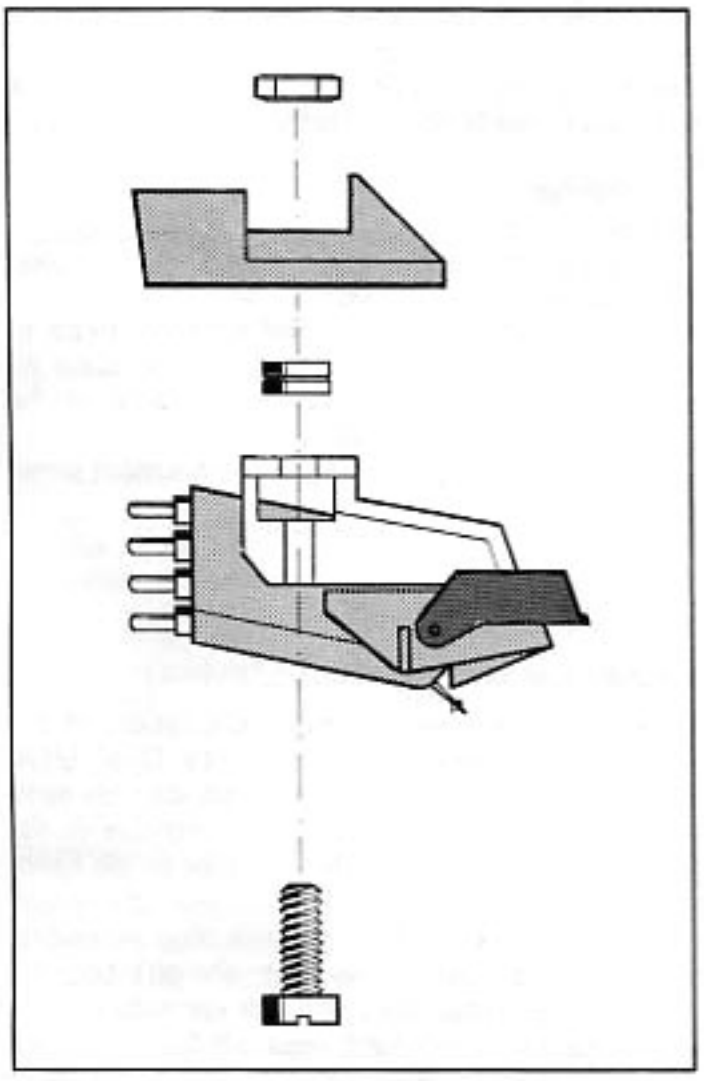


Fig. 8

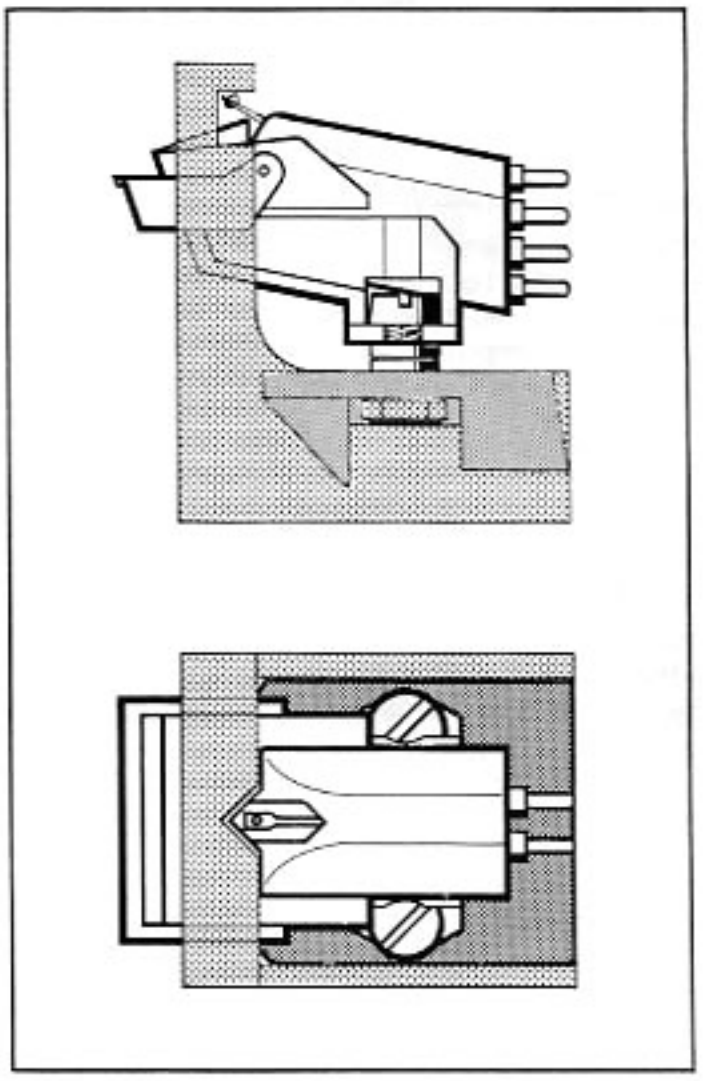
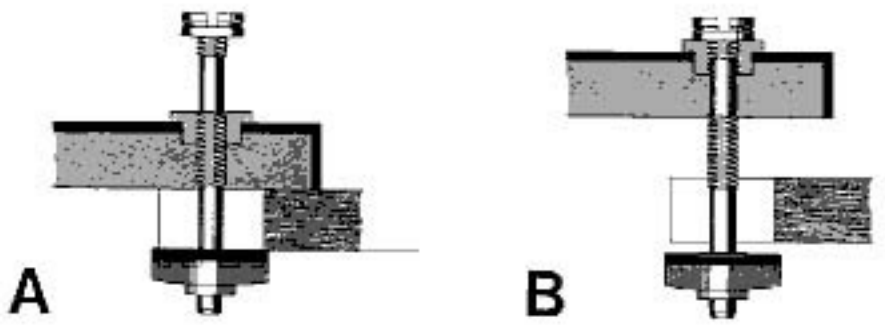


Fig. 9

Installation

Unpacking and setting up

The chassis is secured to the base by three self-contained transit screws. To release the chassis from its transit position, turn each screw clockwise. At mid-position, each screw will disengage. Continue to turn clockwise until each screw is tightened in the chassis (B).



Note: Reverse all these procedures whenever the Dual is to be moved for any distance. Be sure to lock the transit screws in their up-positions and secure the platter to the chassis using either the wedges supplied originally or strips of corrugated cardboard.

Attaching the dust cover

The base is provided with special spring-loaded hinges which allow the cover to remain open at any angle.
To install the dust cover, turn the base around so the hinges are readily accessible.
Parallel the rear panel of the cover to the receiving slots on the hinges (the angle is 60°) and press the bottom edge into the slots. The cover is removed in the same manner.
(The cover is kept in any desired open position by the spring tension of the hinges). To adjust the spring tension, turn both screws. In most cases a half turn will be sufficient.

Connections to power supply

You can plug the line voltage cord of your Dual either into the convenience outlet on the back of your amplifier or directly into a house outlet. The AC plug is polarized and requires a polarized outlet. If the amplifier AC outlet is switched, the amplifier's on/off switch will control the power to the Dual.

Connections to amplifier

1. The black phono cable is for the right channel, the white cable for the left channel.
2. Connect the ground wire of your Dual to the grounding screw on the rear of your amplifier.

Installing cartridges

Note: If you purchased your Dual turntable with a ULM cartridge, it has already been installed and mounted in the tonearm. The information in this section need be referred to only if you should ever wish to replace your ULM cartridge with another ULM cartridge or to install a standard cartridge with 1/2-inch mounting centers. (You will need a small screwdriver.)

Removing ULM cartridge

1. The ULM cartridge in its mounting plate is secured to the tonearm head by an attachment screw **(13)**. There may also be an additional small screw (Fig. 6/S) inserted in the tonearm head at the side of the attachment screw. If so, remove this first and set aside. (Its function is to prevent removal of the stylus assembly).
2. Turn the attachment screw counterclockwise while holding the cartridge which will be loosened and then detached from the tonearm head. (This screw is permanently attached to the tonearm head.)
3. To replace a ULM cartridge, reverse the above procedures. (ULM cartridges are provided already mounted to the ULM mounting plate.)

Installing 1/2-inch cartridges

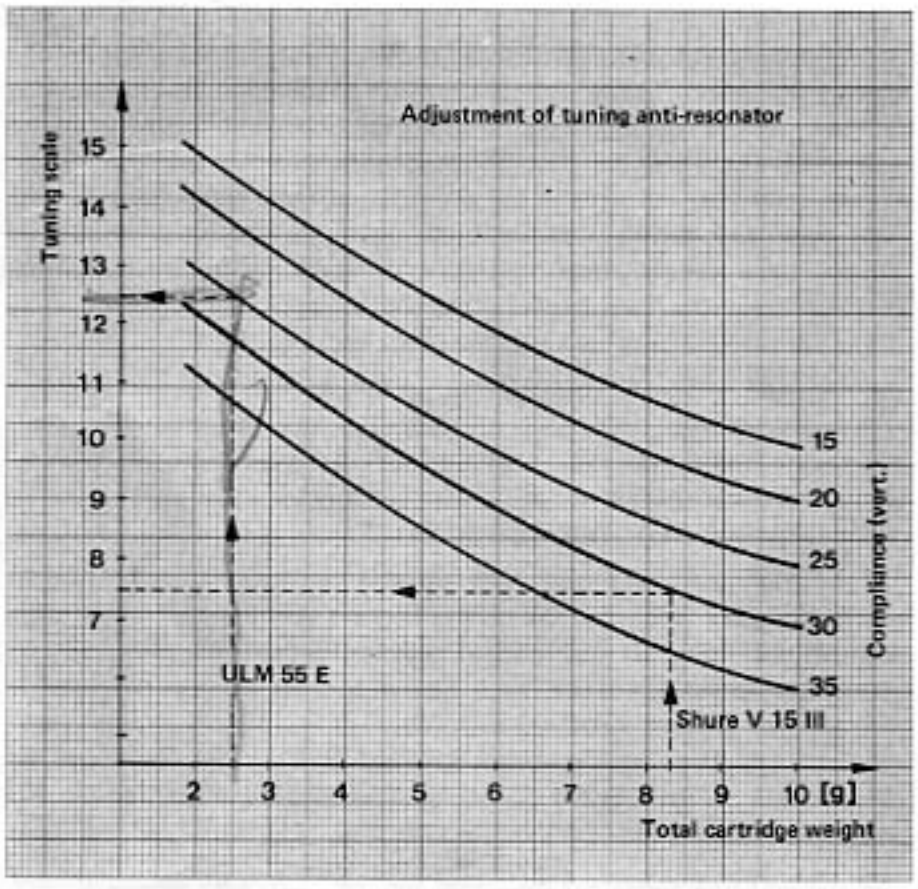
1. Detach the tonearm leads from the ULM cartridge pin holder.
2. Use the mounting accessories provided with the turntable. These include: a mounting place, screws, nuts, spacers and a gauge.
3. Attach the 1/2-inch cartridge to the mounting plate using either the hardware provided with the turntable or with the cartridge. Depending on the depth of the cartridge body you may need to use spacers between the mounting plate and the cartridge. The use of the gauge described below will indicate this. Do not tighten the mounting screws yet.
4. Use the gauge as shown in figure 9 to check the orientation of the cartridge in the mounting plate. Viewed from above, the stylus tip should be in the V-shaped recess of the gauge. Viewed from the side, the stylus should be in the rectangular gap. When the cartridge is correctly positioned, carefully righten the mounting screws. Then check with the gauge once again to make sure the cartridge has not shifted when being tightened.
5. Connect the tonearm leads to the cartridge pins, following this color code:

Red	R	(right channel)
Green	GR	(right channel ground)
Blue	GL	(left channel ground)
White	L	(left channel)

6. Place the mounted cartridge under the tonearm head so that the pins on the top surface of the mounting plate fit into the corresponding holes on the bottom surface of the tonearm head.
7. Secure the cartridge in place by turning the attachment screw clockwise **(13)**.

Tuning the mechanical anti-resonance filter

The tuning anti-resonator enables optimum adaptation of the tonearm to the cartridge being used. Not only Dual ULM cartridges but also conventional 1/2" cartridges can be optimally adapted with this device. For the ULM cartridge or for the 1/2" cartridge you can find the value to be set in the following diagram.
Locate the total weight of the cartridge including mounting hardware on the horizontal scale. Move up to the point on the line corresponding to the compliance of your cartridge. Then look at the vertical scale at left and read off the optimum tuning value.



Net weight and compliance of cartridge can be found in its accompanying data sheet. Add to the net weight of the cartridge the weight of the mounting hardware (mounting plate, screws, spacers, and nuts). With Dual ULM cartridges, net weight and total weight are the same.
In order to set the tuning anti-resonator, turn the scale ring in clockwise direction until you see the determined scale value above the pointer.
It is recommended to carry out tuning setting before inserting the counterbalance in the tonearm. In this case, hold the stem with one hand and turn the scale ring with the other.
Note: If you turn the damping selector in the range of the wedge-shaped marking to stop position, the tuning anti-resonator is safe-guarded against transport damage.

Compliance of HiFi magnetic and dynamic cartridges

Cartridge		Compliance	Stylus pressure	Cartridge mass		
				Mounting		
Manufacturer	Typ		[mN]	Cartridge [g]	hardware [g]	Total mass [g]
Shure	V 15 III	30	10	6,5	1,8	8,3
	V 15 IV	30	10	6,3	1,8	8,1
	M 95 ED	30	12,5	6,5	1,8	8,3
Ortofon	SL 15 Mk II	20	20	7,0	1,5	8,5
	M 20 E	30	10	7,0	1,5	8,5
	M 20 FL-Sup.	20	15	5,5	1,2	6,7
	ULM 50 E	18	20	2,5	–	2,5
	ULM 55 E	25	15	2,5	–	2,5
Audio-Technica	TK 7 E	20	15	6,8	1,2	8,0
	TK 14 S	20	15	6,2	1,8	8,0
	AT 13 Ea	25	15	5,5	1,8	7,3
	AT 15 Sa	35	15	6,2	1,8	8,0
	AT 20 SLa	25	15	7,6	1,8	9,4

Balancing the tonearm

Note: 1/2-inch cartridges weighing 6.5 grams or more will requiere the addition of weights on the rear of the counterbalance in order for the tonearm to be properly balanced. Two such weights are provided in the accessory package. For cartridges weighing approximately 6.5 grams, screw the weight with the threaded screw (the smaller thread) into the rear of the counterbalance. For cartridges weighing more than 6.5 grams, the second weight should be screwed onto the first.
1. With the tonearm locked and the stylus force and anti-skating dials set at 0, slip the shaft of the counterbalance onto the rear of the tonearm, guiding it on by the V-shaped track. Do not tighten the set-screw.
2. If your cartridge has a removable stylus protector, detach it before balancing the tonearm.
3. Unlock the tonearm and move it to the inside, past the switch-on position. Move the cue-control to the ⧗ position. Then notice if the tonearm floats either up or down.
4. Slide the counterbalance back and forth until the tonearm is approximately balanced for the weight of the cartridge. Then tighten the set-screw.
5. For fine balance, turn the knurled ring of the counterbalance until the tonearm floats freely parallel to the platter.

Applying tracking force

Place the tonearm on the rest post and dial the tracking force recommended for your cartridge.
Tracking force can be set to any value from 0 to 3.0 grams. Between 0 and 1.5 grams, the dial is calibrated in increments of 0.1 gram, between 1.5 and 3.0 grams, in increments of 0.25 gram.

Note: The Dual tonearm can track at a force as low as 0.25 gram. However, you should not actually attempt to track at so low a force as this is below the optimum tracking force on any cartridge available today. In all cases, the tracking ability of the cartridge you select will determine the best stylus force to use.
It is usually wise to set tracking force toward the higher end of the range suggested by the manufacturer of your cartridge. If loud passages with a good record sound clean, you can reduce the force slightly, but listen for the harshness or fuzziness that occurs with insufficient tracking force.
Too light a tracking force produces distortion, and also produces groove skipping and excessive record wear.
Too heavy a tracking force restricts the ability of the stylus to follow the contours of the groove and can also cause excessive record wear.

Applying anti-skating

Use the bottom scale (○) for conical styli, the top scale (⊂) for elliptical styli. Dial to the same number you have set for tracking force.

Operation

After the initial installation and after the unit has been transported, lock the tonearm on the rest post, and move the operating switch to "start". This will ensure the automatic cycling mechanism is in neutral.

Single-play operation

For 12", 33 rpm records, insert the short spindle into the shaft.
For 7", 45 rpm records, use the large-hole adapter.

Automatic start

The tonearm will index 12" records when motor speed is set for 33 1/3 rpm; 7" records, when speed is set for 45 rpm.
Move the operating switch to "start". (The motor will start, the tonearm will rise, move over to the record and descend to play.)

Cue-control start

Move the cue-control lever to position ▼, then place the tonearm over the record where you would like play to begin. (The platter will begin to rotate when the tonearm is moved toward the record.)
To lower the tonearm, flick the cue-control lever to ▼.

To interrupt or stop play

For a brief interruption, move the cue-control lever to ▼ and the tonearm will lift. (The platter will continue to rotate.)
To stop play, either move the operating switch to "stop," or lift the tonearm from the record (either by hand or with the cue control) and move it to the rest post. (The motor will shut off automatically.)

Continuous play

When the continuous-repeat switch **(7)** is in position ∞, the tonearm will repeat the record until switched to the single-play position, or until the operating switch is moved to "stop."

Multiple-play

Insert the long spindle **(20)** into the platter shaft so that the key at the bottom of the spindle fits into the slot. Lock the spindle in place by pressing it down and turning clockwise until it stops.
Up to six records can now be played in automatic sequence, using the same operation as in single play.
To interrupt any record in play and change to the next one, move the operating switch to "start."
Records already played can be lifted back onto the spindle for replay or to be removed, The spindle need not be removed.
Note: An optional large-hole multiple-play spindle for 45 rpm records is available at your Dual dealer.

Pitch-control and strobe

Each of the two speeds can be varied with the pitch control. To set the speeds precisely at 33 1/3 or 45 rpm, play a record while viewing the illuminated strobe bars on the platter rim.

Each speed is exactly correct when no movement of the bars is observed. If the bars appear to move counterclockwise, motor speed is slow. Turn the pitch-control clockwise to advance speed. If the bars are moving clockwise, the speed can be slowed by turning the pitch-control counter-clockwise.
The pitch-control can also provide other than exact speed. For example, when you want to match the pitch of recorded music to a live musical instrument. Also, when making tape recordings, you may prefer that the tape sound flatter or sharper than at "normal" speed. You can also "stretch" or "shrink" a recorded selection slightly to match a length of motion picture film.

Adjustment of tonearm indexing

When the operating switch is moved to "start", the tonearm automatically lifts, moves to the record and lowers. The stylus should set down in the lead-in groove. If the stylus of another cartridge, installed later, sets down too far inside or outside the lead-in groove, proceed as follow:
Slightly lift the Dual emblem located at the right front corner of the chassis and move it outward. The adjustment screw **(8)** will then be visible through the opening.

Adjustment of tonearm indexing for 12" (30 cm) records.

Move speed selector **(17)** to "45" and correct the setting by turning the adjustment screw slightly. (use a suitable screwdriver).
If the stylus sets down too far inside the lead-in groove, turn the screw clockwise. If the stylus sets down too far outside the lead-in groove, turn the screw counterclockwise.

Adjustment of tonearm indexing for 7" (17 cm) records.

Move the speed selector **(17)** to "33" and proceed as indicated above for 12" records.

Cue-control height adjustment

The height of the stylus tip over the record in the raised position ▼ can be varied approximately 1/4" (6 mm) by turning the adjustment screw **(4)**.

Do not exceed this range as the tonearm movement may be impeded.

Removing the platter

The platter is secured to the shaft by the decorative center ring. To remove the platter, press the ring slightly downward and turn it clockwise approximately 60° until it releases. The platter can now be lifted off. To place the platter, reverse the above procedures, turning the ring counterclockwise.

Replacing the drive belt

Remove the platter as described above and set the old belt aside. Place the new belt around the drive platter of the turntable, with the textured (ground) side of the belt on the inside.
Then slip the belt around the Vario-pulley and inside the guide fork. Finally, lower the platter onto the shaft and secure with the decorative center ring.

Stylus care

In normal use, every stylus is subject to wear and tear. We recommend that yours be inspected periodically, and certainly after approximately 300 playing hours in the case of diamond styli. Worn or damaged (chipped) styli will grind the modulation out of the grooves and damage your records. For replacement, obtain only the stylus type recommended in the Technical Data for your cartridge. Imitations can cause noticeable loss in sound quality and rapid record wear.

Please keep in mind that the stylus and cantilever are necessarily quite delicate in order to provide quality performance. They are extremely sensitive to harsh handling, accidental blows, etc. Take the cartridge in the holder to your Dual dealer for inspection of the stylus. (Removal of cartridge holder is described above).

Servicing

Your Dual has a limited warranty of two years from date of purchase against manufacturing defects or faulty parts.
Should your unit require service, please write to our service department (address on the back cover), describing your complaint.
During the warranty period, the Dual will be serviced without charge under the conditions stated on the warranty card. Note: Only factory-authorized service stations should service the Dual; any servicing by anyone else will void our warranty. After it has been serviced, your turntable will be shipped back to you.

Technical data

Current AC 50 or 60 Hz, changeable by changing motor pulley
Line voltage 115 or 230 V, changeable
Drive Dual 16-pole synchronous motor; precision flat belt for flywheel drive
Power consumption approx. 8 watts
Starting time (to each nominal speed) approx. 2,5 seconds at 33 1/3 rpm
Power consumption
at 220 V, 50 Hz: approx. 75 mA
at 117 V, 60 Hz: approx. 140 mA
Platter
Non-magnetic, detachable, 1 kg, 304 mm ϕ
Platter speeds 33 1/3 and 45 rpm
Automatic tonearm set-down coupled with speed adjustment
Pitch control variation at both platter speeds
Adjustment range at 33 1/3 rpm approx. 1 semitone (6 %).
Speed control
with illuminated stroboscope for platter speeds 33 1/3 and 45 rpm, 50 and 60 Hz
Sensitivity of the illuminated strobe for 0.1 % speed deviation
6 division markings per minute at 50 Hz,
7,2 division markings per minute at 60 Hz.
Total wow and flutter

DIN	± 0.07 %
WRMS	± 0.04 %

Rumble (according to DIN 45 500)

Unweighted	48 dB
Weighted	70 dB

Tonearm
Distortion-free "ultra-low-mass" aluminum tubular tonearm in 4-point gimbal bearing
Effective tonearm length 221 mm
Offset angle 24° 4'
Tangential tracking error 0.16°/cm
Tonearm bearing friction (referred to stylus tip)
0.07 mN (0.007 g)
Adjustable overhang 5 mm

Dual®

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